AMENDMENTS TO THE DRAWINGS

Attached are two drawing sheets showing the changes made to Figures 1 and 2 and two replacement sheets for review and approval by the Examiner.

Attachments: 2 Annotated Sheets Showing Changes Made

2 Replacement Sheets

REMARKS

I. Status of the Claims and the Rejections

Substantively, claims 2-8, 12, and 13 were rejected under 35 U.S.C. § 103 as being obvious over Williams U.S. Patent No. 6,189,324 ("Williams") in view of Darges U.S. Patent No. 3,825,212 ("Darges"), and further in view of Hayes U.S. Patent No. 4,149,389 ("Hayes"). Applicants respectfully traverse these rejections.

Nevertheless, Applicants have amended claims 2-8, 12 and 13 to further clarify the subject matter regarded as patentable. Applicants respectfully request reconsideration and allowance of the claims in view of these amendments and the following remarks.

The Examiner has indicated that the information disclosure statement filed June 9, 2006, fails to comply with USPTO regulations because a concise explanation of the relevance of Lufthansa Report 0476 (published in German) was not provided. To allow the Examiner to consider this reference, applicants' patent counsel has provided the following concise explanation of the relevance of this reference:

> Lufthansa Report 0476 contains a description of the basic structure of an aircraft conditioning system. As becomes apparent from the drawing on page 5 of the report, a typical aircraft air-conditioning system comprises a cooling turbine, water separators and heat exchangers. A mixing chamber is provided for mixing cool air with recirculation air.

Thus, this Lufthansa Report describes the basic structure of aircraft air conditioning systems, and is generally analogous to the state of the art described in the background of the specification. Applicants respectfully request that this Lufthansa Report be considered by the examiner, and that the USPTO's file be marked accordingly, to so indicate such consideration.

II. Technical Objections to the Previous Response

Claims 12 and 13 were rejected under 35 U.S.C. § 112, first paragraph, as being indefinite and for failing to comply with the written description requirement. The replacement

drawings and substitute specification filed with the response dated November 26, 2008 were also objected to for allegedly introducing new matter to the disclosure. Each of these rejections and objections is based on the inclusion of a "mixing zone 26" in the previous response. To a large extent, these changes to the drawings and the corresponding amendments to the claims were intended to accommodate the examiner's earlier objections. Nonetheless, applications have removed from the drawings, specification, and claims, all references to a mixing zone, thereby to overcome these rejections and objections. Applicants respectfully request that these rejections to the claims and the objections to the drawings and specification now be withdrawn.

III. Claims 2-8, 12 and 13 are Not Obvious

A. The Claims

Claim 12 recites a device for heating an aircraft cabin including a first hot air supply line leading to an air conditioning unit, a flow control valve disposed in the first hot air supply line upstream from the air conditioning unit, and a second hot air supply line branching off from the first hot air supply line between the flow control valve and the air conditioning unit. During normal operation, the air in the second hot air supply line bypasses the air conditioning unit and a control device adjusts the mixing of air in the second hot air supply line with cooled air from the air conditioning unit prior to delivery to the aircraft cabin. The device further includes a third hot air supply line branching off from the first hot air supply line upstream of the flow control valve and connecting to the second hot air supply line upstream of where hot air supplied via the second hot air supply line mixes with cool air flowing out of the air conditioning unit, as well as an ambient air inlet flap that feeds cold ambient air for mixing with the hot air supplied in the third hot air supply line when the air conditioning unit fails. The same control

device used in normal operations adjusts the mixing of air from the third hot air supply line with the cold ambient air to achieve a controlled aircraft cabin air temperature.

Claim 13 is an independent method claim reciting a method for heating an aircraft cabin, and which is analogous to claim 12. Claims 2-8 depend from independent claim 12 and include additional features of the claimed heating device. For example, claim 2 recites that a first close off mechanism in the second hot air supply line "assumes its open position" and a second close off mechanism in the third hot air supply line "assumes its closed position" during a normal mode of operation.

B. The Deficiencies of the Cited Prior Art

Williams is directed to an environmental control unit (10) for an aircraft having a cabin (12) capable of pressurization and a turbine engine (14). The unit (10) comprises a first line for supplying hot bleed air from the turbine (14) to an air cycle cooling circuit (60) (*see* Figure 1). An electrically operated selector valve (50) is disposed within the first line upstream of the air cycle cooling circuit (60) and comprises a first outlet (54) as well as a second outlet (58), wherein the second outlet (58) is in fluid communication with the air cycle cooling circuit (60) (Col. 3, lines 58-63). A second line branches off the first line between the selector valve (50) and the air cycle cooling circuit (60) and connects the first line to a mixer (120) for mixing cool air exiting the air cycle cooling circuit (60) with uncooled air passed through the second line (Col. 6, lines 58-66). The first outlet (54) of the selector valve (50) is connected to a full bleed air line (56), i.e. a third line, wherein the full bleed air line (56) opens into a fourth line connecting the mixer (120) to the cabin (12) of the aircraft. A mechanical check valve (136) is arranged in the fourth line to prevent fluid flow from the cabin (12) or the full bleed line (56) into the mixer (120) (Col. 7, lines 23-28).

The Office Action states that Williams fails to disclose that the third hot air supply line branches off the first hot air supply line upstream of the flow control valve, or an ambient air inlet which feeds cold ambient air for mixing with the hot air supplied via the third hot air supply line when the air conditioning unit fails. However, the Office Action turns to Darges for the teaching of an aircraft heating system having an ambient air inlet, and to Hayes for the teaching that a three-way valve (as disclosed in Williams) is equivalent to 2 two-way valves (as recited in claim 12). Darges does disclose a heating system for a helicopter having an ambient air inlet (24) operatively coupled to a hot air bleed duct (32) at a mixing zone (30), the mixed air being delivered at a controlled temperature to the helicopter cabin. The Office Action alleges that it would have been obvious to modify Williams to include the mixing zone and ambient air inlet of Darges "to automatically control the temperature of the air that is being supplied to the aircraft passenger compartment during the failure mode" (Office Action, page 8). Applicants disagree.

Modifying Williams in the manner suggested would undermine the expressly stated purposes of Williams. Unlike the currently claimed heating device, Williams is designed to maintain the pressurization and temperature of an aircraft cabin. When the environmental control unit (10) undergoes a "catastrophic failure," Williams teaches that "the first selector valve (50) is actuated to provide compressor bleed air directly to the aircraft cabin (12) via the full bleed air line (56) to maintain the pressurization thereof" (Col. 3, line 63 – Col. 4, line 3). Thus, the primary purpose served by the full bleed air line (56) is to provide a flowpath for pressurizing the aircraft cabin.

In contrast, Darges includes an ambient air inlet because Darges is not configured to pressurize the helicopter cabin (indeed, helicopter cabins are typically not pressurized). If the ambient air inlet of Darges were added to the full bleed air line (56) of Williams, the full bleed

air line (56) would necessarily be in fluid communication with the ambient air pressure, which would depressurize the full bleed air line (56) as well as the aircraft cabin. Thus, the full bleed air line (56) would not be able to maintain the pressurization of the aircraft cabin and Williams would not be capable of performing one of its primary purposes. One having ordinary skill in the art would not modify Williams in a way that would undermine the expressly stated primary purpose of Williams.

Furthermore, even if Williams were modified in the manner suggested, the resulting heating system would still fail to meet all the features of claim 12. Claim 12 now recites that the third hot air supply line branches off from the first hot air supply line upstream from the flow control valve and connects to the second hot air supply line "upstream of where the hot air supplied via the second hot air supply line (18) mixes with cool air flowing out of the air conditioning unit (14)." This claim amendment is fully supported in the original Specification at paragraph [0019] and Figure 1.

In contrast, as shown in Figure 1 of Williams, Williams shows the full bleed air line (56), which is cited as the claimed "third hot air supply line," branching off from the alleged first hot air supply line at the selector valve (50) and connecting to a fourth line connecting the mixer (120) to the cabin (12) of the aircraft. Thus, the alleged "third hot air supply line" recouples with the "second hot air supply line" downstream of the mixer (120), which is where the hot air from the alleged "second hot air supply line" mixes with cool air flowing out of the cooling circuit (60). This is precisely the opposite of the currently claimed system. Although the Examiner could potentially argue that the placement of this junction between the third hot air supply line and the second hot air supply line is a matter of design choice, such an argument would be incorrect because positioning the full bleed air line (56) into communication with the alleged second hot air supply line prior to the mixer (120) would permit hot engine bleed air to

travel back up the second hot air supply line and into the cooling circuit (60). This would ruin the components of the malfunctioning cooling circuit (60).

For at least these reasons, claim 12 is allowable over Williams, Darges, and Hayes. Claims 2-8 depend from claim 12 and recite unique combinations of features also not disclosed by the cited combination of references. Claim 13 is a method claim analogous to claim 12 and is allowable over the cited art for at least the same reasons. Applicants respectfully request that the rejection of claims 2-8, 12 and 13 now be withdrawn.

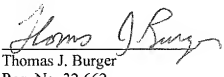
IV. Conclusion

Based on the amendments to the claims and these remarks, Applicants respectfully assert that all present claims are in condition for allowance, and respectfully request an allowance without further delay. Applicants also request reconsideration of the examiner's position with respect to the Lufthansa Report, to show that this reference has been considered.

It is believed that no fee is due for this filing. If any fee is deemed due, consider this as an authorization to charge Deposit Account 23-3000 therefore.

Respectfully submitted,

December 7, 2009
Date



Thomas J. Burger
Reg. No. 32,662

WOOD, HERRON & EVANS, L.L.P.
2700 Carew Tower
441 Vine Street
Cincinnati, Ohio 45202
Telephone: (513) 241-2324
Facsimile: (513) 241-6234